

## CLAIMS

1. A method of analyzing a sub-model of a full system model,  
said method comprising the steps of:

defining the sub-model as a collection of entities;

determining which of the entities in the sub-model are calculation  
5 entities and which are data entities;

converting the calculation entities in the sub-model that depend on  
entities in the full model that are not included in the sub-model into  
temporary data entities;

identifying output entities in the sub-model, where the output  
10 entities are calculation entities that do not have an output to another entity;  
and

analyzing the sub-model by performing the calculations for the  
calculation entities.

*sub a3* 2. The method according to claim 1 further comprising the step  
of deleting those entities that the temporary data entities depend on.

3. The method according to claim 1 further comprising the step  
of identifying isolated cycles in the sub-model.

4. The method according to claim 3 wherein the step of  
identifying isolated cycles includes selecting an entity in an isolated cycle as  
an output entity.

5. The method according to claim 4 wherein the step of selecting  
an entity in an isolated cycle as an output entity includes arbitrarily selecting  
an entity in the isolated cycle as an output entity.

6. The method according to claim 1 further comprising the step of assigning data to all data entities in the sub-model, said step of assigning data including assigning data to the temporary data entities.

7. The method according to claim 1 further comprising the step of adding all global variables to the sub-model that were not included in the sub-model when it was part of the full model.

8. A method of analyzing a sub-model of a full system model, said method comprising the steps of:

defining the sub-model as a collection of entities;

5 determining which of the entities in the sub-model are calculation entities and which are data entities;

converting the calculation entities in the sub-model that depend on entities in the full model that are not included in the sub-model into temporary data entities;

10 deleting those entities that the temporary data entities depend on;

identifying output entities in the sub-model, where the output entities are calculation entities that do not have an output to another entity;

identifying isolated cycles in the sub-model that are a series of entities that depend on themselves; and

15 analyzing the sub-model by performing the calculations for the calculation entities.

9. The method according to claim 8 wherein the step of identifying isolated cycles includes selecting an entity in an isolated cycle as an output entity.

10. The method according to claim 8 wherein the step of selecting an entity in an isolated cycle as an output entity includes arbitrarily selecting an entity in the isolated cycle as an output entity.

11. The method according to claim 8 further comprising the step of assigning data to all data entities in the sub-model, said step of assigning data including assigning data to the temporary data entities.

12. The method according to claim 8 further comprising the step of adding all global variables to the sub-model that were not included in the sub-model when it was part of the full model.

13. A system for analyzing a sub-model separated from a full system model, said system comprising:

means for defining the sub-model as a collection of entities;

means for determining which of the entities in the sub-model are

5 calculation entities and which are data entities;

means for converting the calculation entities in the sub-model that depend on entities in the full model that are not included in the sub-model into temporary data entities;

10 means for identifying output entities in the sub-model, where the output entities are calculation entities that do not have an output to another entity; and

means for analyzing the sub-model by performing the calculations for the calculation entities.

*sub 65* 14. The system according to claim 13 further comprising means for deleting those entities that the temporary data entities depend on.

15. The system according to claim 13 further comprising means for identifying isolated cycles in the sub-model.

16. The system according to claim 15 wherein the means for identifying includes means for selecting an entity in an isolated cycle as an output entity.

17. The system according to claim 16 wherein the means for selecting an entity includes arbitrarily selecting an entity in the isolated cycle.

18. The system according to claim 13 further comprising means for assigning data to all data entities in the sub-model and assigning data to the temporary data entities.

19. The system according to claim 13 further comprising means for adding all global variables to the sub-model that were not included in the sub-model when it was part of the full model.